

WHAT IS CLAIMED

1. Pressure relief valve for venting a container of thermally conductive material which is for containing a fluid which expands and becomes pressurized upon the container being heated, comprising:

5 a hollow member of relatively high thermal conductivity including a first end portion and a second end portion, said first end portion provided with a first internal surface and a second internal surface disposed inwardly of and extending outwardly from said first internal surface;

a fusible member including a first end portion and a second end portion
10 provided with an outwardly extending portion, said first end portion provided with friction enhancement means, said fusible member for being inserted into said hollow member through said second end portion thereof and said first end portion and said friction enhancement means of said fusible member for being forced into frictional engagement with said first internal surface of said hollow
15 member to frictionally mount said fusible member in said hollow member, as said first end portion of said fusible member is being forced into frictional engagement with said first internal surface of said hollow member said outwardly extending portion of said second end portion of said fusible member for engaging said second internal surface of said hollow member to position
20 said fusible member in said hollow member and to prevent said fusible member from being forced outwardly of said hollow member through said first end portion thereof as said fusible member is mounted frictionally to said hollow member; and

said second end portion of said hollow member for being placed in
25 mechanical and thermal engagement with the container.

2. The pressure valve according to claim 1 wherein said friction enhancement means comprise at least one ridge extending outwardly from said first end portion of said fusible member.

3. The pressure valve according to claim 1 wherein said friction enhancement means comprise a plurality of ridges spaced apart and extending outwardly from said first end portion of said fusible member.

5 4. The pressure valve according to claim 1 wherein said hollow member is a hollow cylindrical member, wherein said first end portion is a radially inwardly extending annular portion providing said first surface and said second surface, wherein said first surface is an axially extending internal cylindrical surface having an inner end and wherein said second surface is an annular surface
10 extending radially outwardly from said inner end of said cylindrical surface and disposed at a right angle with respect thereto.

5. The pressure valve according to claim 1 wherein said fusible member is a fusible disc member, wherein such first end portion of said fusible disc
15 member is a cylindrical first end portion and wherein said second end portion of said fusible disc member comprises an annular flange portion extending radially outwardly from said cylindrical first end portion of said fusible disc member.

6. The pressure valve according to claim 5 wherein said friction
20 enhancement means comprise at least one annular ridge extending radially outwardly from said cylindrical first end portion of said fusible disc member.

7. The pressure valve according to claim 5 wherein said friction
25 enhancement means comprise a plurality of annular ridges spaced apart axially and extending radially outwardly from said cylindrical first end portion of said fusible disc member.

8. The pressure valve according to claim 4 wherein said second end portion of said hollow cylindrical member is provided with internal threads, wherein said
30 container is provided with an outwardly extending pipe provided with external threads and wherein said internal threads are for threadedly engaging said

external threads to place said hollow cylindrical member in mechanical and thermal engagement with said container.

9. The pressure valve according to claim 8 wherein said pipe includes an
5 outer annular end, wherein annular said annular flange portion of said fusible
disc member provides an annular gasket sealing surface, and wherein said
pressure valve further includes an annular gasket for being positioned
intermediate said outer annular end of said pipe and said annular gasket
sealing surface.

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10. A pressure relief valve for venting a container, comprising:
a hollow generally annular nut of relatively high thermal conductivity
having opposed open ends and including a first end portion providing a
cylindrical friction engaging surface and an annular stop surface disposed
15 axially inwardly from, and extending radially outwardly from, said cylindrical
friction engaging surface;

a fusible disc including a cylindrical first end portion providing a
cylindrical surface provided with friction enhancement means and a second end
portion providing an annular flange extending radially outwardly from said
20 cylindrical first end portion and displaced axially therefrom;

said cylindrical first end portion of said fusible disc and said friction
enhancement means for being forced into frictional engagement with said
cylindrical friction engaging surface of said hollow nut to mount said fusible disc
to said hollow nut and said annular flange of said fusible disc engaging said
25 annular stop surface of said hollow nut to position said fusible disc in said
hollow nut and prevent said fusible disc from being forced out of said hollow nut
as said fusible disc is mounted frictionally in said hollow nut; and

said annular nut including an internally threaded second end portion for
threadedly engaging the external threads provided on a pipe extending out of
30 the container to place the pressure relief valve in mechanical and thermal
engagement with the container.

11. The pressure relief valve according to claim 10 wherein said friction enhancement means comprise at least one annular ridge extending radially outwardly from said cylindrical surface of said cylindrical first end portion of said fusible disc.

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12. The pressure relief valve according to claim 10 wherein said friction enhancement means comprise a plurality of axially spaced apart and radially outwardly extending annular ridges provided on said cylindrical surface of said cylindrical first end portion of said fusible disc.

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13. The pressure relief valve according to claim 10 wherein said fusible disc is a fusible cap disc, wherein said first end portion of said annular nut is a radially inwardly extending flange portion providing an annular top surface, and wherein said fusible cap disc includes a circular top surface residing on top of
15 said cylindrical first end portion of said fusible cap disc and wherein said annular surface and said circular surface combine to provide said pressure relief valve with a substantially smooth top surface.

14. Pressure relief valve, comprising:
20 an annular nut of relatively high thermal conductivity having a central axis, said nut including a first end portion and a second end portion, said first end portion provided with an inwardly extending axial cylindrical surface and an internal annular surface displaced axially inwardly of and extending radially outwardly from said cylindrical surface, said second end portion provided with
25 internal threads;

a fusible disc having a cylindrical first end portion including a cylindrical surface provided with at least one outwardly extending annular ridge and an annular second end portion extending radially outwardly from said cylindrical first end portion;

30 said cylindrical first end portion of said fusible disc forced into frictional engagement with said cylindrical surface of said annular nut and said annular

second end portion of said fusible disc engaging said annular surface of said annular nut to position said fusible disc in said annular nut and to prevent said fusible disc from being forced outwardly of said annular nut as said cylindrical first end portion of said fusible disc is forced into frictional engagement with said
5 cylindrical surface of said annular nut.

15. The pressure relief valve according to claim 14 wherein said annular second end portion of said fusible disc provides an outer annular gasket sealing surface, and wherein said pressure relief valve further comprises an annular
10 gasket positioned internally of said annular nut and engaging said annular gasket sealing surface and residing intermediate said annular gasket sealing surface and said internal threads.

16. The pressure relief valve according to claim 14 wherein said cylindrical
15 surface provided on said fusible disc provides a plurality of axially spaced apart and radially outwardly extending annular ridges.

17. The pressure relief valve according to claim 14 wherein said fusible disc is a fusible cap disc, wherein said annular nut provides an annular top surface,
20 and wherein said fusible cap disc provides a circular top surface residing on top of said cylindrical first end portion of said fusible cap disc and wherein said annular surface and said circular surface combine to provide said pressure relief valve with a substantially smooth top surface.

25 18. Pressure relief valve including an annular nut of relatively high thermal conductivity including a first end portion providing an inwardly extending axial cylindrical surface and an internal annular surface extending radially outwardly from said cylindrical surface and including an internally threaded second end portion, and a fusible disc including a cylindrical first end portion provided with
30 frictional enhancement means in frictional engagement with said cylindrical

surface to mount said fusible disc frictionally in said annular nut and including an annular second end portion engaging said annular surface to position said fusible disc in said annular nut.

- 5 19. A pressure relief valve for venting a container having an interior and provided with a pipe extending outwardly therefrom, the pipe being in fluid communication with the interior of the container, having an annular end and being provided with external threads, having an annular end, comprising:
- a hollow generally annular nut of relatively high thermal conductivity
- 10 including an open first end portion and an opposed open second end portion, said open first end portion including a radially inwardly extending flange portion providing a central circular opening defined by an inwardly extending axial cylindrical friction engaging surface and said open first end portion further providing an annular stop surface disposed axially inwardly from, and extending
- 15 radially outwardly from, said cylindrical friction engaging surface, said open second end portion provided with a plurality of internal threads, and said flange portion further providing an annular surface disposed intermediate and extending radially outwardly from said cylindrical friction engaging surface and said internal threads and providing an annular area;
- 20 a fusible cap disc including a cylindrical first end portion provided with at least one outwardly extending annular ridge and further including an annular flange second end portion extending radially outwardly from said cylindrical first end portion and including an outer surface providing an annular gasket sealing surface;
- 25 an annular gasket including an outer annular peripheral portion;
- said cylindrical first end portion of said fusible cap disc residing in said circular opening with said annular ridge frictionally engaging said cylindrical friction engaging surface to mount said fusible cap disc to and in said annular nut and said annular flange of said fusible cap disc residing in said annular
- 30 area, and said annular second flange end portion of said fusible disc engaging said annular stop surface to prevent said fusible cap disc from being forced out

of said annular hollow nut as said fusible cap disc is mounted frictionally in said circular opening of said hollow nut, and the outer annular peripheral portion of said gasket residing in said annular area; and

- 5 said internal threads for threadedly engaging said external threads to compress said annular gasket between said annular end of said pipes and said annular gasket sealing surface of said fusible cap disc to seal said pressure relief valve to the container, to place said annular nut in mechanical and thermal engagement with the container and to place said fusible cap disc in fluid communication with the interior of the container.

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